

### **Amendments to the Claims:**

The listing of claims below will replace all prior versions and listings of claims in the application:

#### **Listing of Claims:**

1. (Currently amended) A composite polyamide reverse osmosis membrane comprising:

- (a) a microporous support;
- (b) a polyamide layer on said microporous support; and
- (c) a hydrophilic coating on said polyamide layer, said hydrophilic coating being made by (i) applying to the polyamide layer a quantity of a polyfunctional epoxy compound, said polyfunctional epoxy compound ~~comprising at least three epoxy groups~~ selected from the group consisting of diglycerol triglycidyl ether; pentaerythritol triglycidyl ether; sorbitol triglycidyl ether; glycerol propoxylate triglycidyl ether; trimethylolpropane triglycidyl ether; 1,1,1-tris(hydroxymethyl)ethane triglycidyl ether; 1,1,1-tris(hydroxyphenyl)ethane triglycidyl ether; tris(hydroxymethyl)nitromethane triglycidyl ether; phloroglucinol triglycidyl ether; a reaction product of epichlorohydrin and 1,3,5,-tris(2-hydroxyethyl)cyanuric acid; a reaction product of epichlorohydrin and tris(hydroxymethyl)amino methane; sorbitol tetraglycidyl ether; pentaerythritol tetraglycidyl ether; polyglycerol tetraglycidyl ether; sorbitol pentaglycidyl ether; sorbitol hexaglycidyl ether; polyglycerol polyglycidyl ether, and (ii) then, cross-linking the polyfunctional epoxy compound in such a manner as to yield a water-insoluble polymer, wherein said polyfunctional epoxy compound is cross-linked through at least one of self-polymerization and the help of a cross-linking compound, said cross-linking compound differing from said polyamide layer.

2. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 1 wherein said microporous support is made of a material selected from the group consisting of a polysulfone, a polyether sulfone, a polyimide, a polyamide, a polyetherimide, polyacrylonitrile, poly(methyl methacrylate), polyethylene, polypropylene and a halogenated polymer.

3. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 1 wherein said polyamide layer is the interfacial reaction product of a polyfunctional amine and a polyfunctional amine-reactive reactant.

4. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 3 wherein said polyfunctional amine is at least one member selected from the group consisting of an aromatic primary diamine and substituted derivatives thereof, an alkane primary diamine, a cycloaliphatic primary diamine, a cycloaliphatic secondary diamine, an aromatic secondary diamine and a xylylene diamine.

5. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 4 wherein said polyfunctional amine is meta-phenylenediamine.

6. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 4 wherein said polyfunctional amine is piperazine.

7. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 3 wherein said polyfunctional amine-reactive reactant is at least one member selected from the group consisting of a polyfunctional acyl halide, a polyfunctional sulfonyl halide and a polyfunctional isocyanate.

8. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 7 wherein said polyfunctional amine-reactive reactant is trimesoyl chloride.

Claims 9-10 (Canceled).

11. (Currently amended) The composite polyamide reverse osmosis membrane as claimed in claim 1 wherein said polyfunctional epoxy compound is cross-linked solely through self-polymerization.

12. (Previously presented) The composite polyamide reverse osmosis membrane as claimed in claim 1 wherein said polyfunctional epoxy compound is cross-linked with the help of said cross-linking compound.

13. (Previously presented) The composite polyamide reverse osmosis membrane as claimed in claim 12 wherein said cross-linking compound comprises at least two epoxy-reactive groups selected from the group consisting of hydroxy groups; amino groups; amide groups; carbonyl groups; and sulfurhydryl (thiol) groups.

14. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 13 wherein said at least two epoxy-reactive groups are the same.

15. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 13 wherein said at least two epoxy-reactive groups are different.

16. (Previously presented) The composite polyamide reverse osmosis membrane as claimed in claim 13 wherein said cross-linking compound is at least one member selected from the group consisting of ethylene glycol; propylene glycol; 1,3-propanediol; 1,3-butanediol; 1,4-butanediol; 1,5-pentanediol; 1,2-pentanediol; 2,4-pentanediol; 1,6-hexanediol; 1,2-hexanediol; 1,5-hexanediol; 2,5-hexanediol; 2-ethyl-1,3-hexanediol; 1,7-heptanediol; 1,2-octanediol; 1,8-octanediol; 1,9-nonanediol; 1,10-decanediol; 1,2-decanediol; glycerol; trimethylolpropane; 1,1,1-tris(hydroxymethyl)ethane; 1,1,1-tris(hydroxyphenyl)ethane; tris(hydroxymethyl)aminomethane;

tris(hydroxymethyl)nitromethane; 1,3,5-tris(2-hydroxyethyl)cyanuric acid; pentaerythritol; sorbitol; glucose; fructose; maltose; mannose; glucosamine; mannosamine; a polysaccharide; neopentyl glycol; hydroquinone, resorcinol; isocyanuric acid; phloroglucinol; polyvinyl phenol; polyacrylamide; polyethylene glycol with the repeating ethylene glycol unit  $(\text{CH}_2\text{CH}_2\text{O})_n$  wherein n ranges from 2 to 400, inclusive; and polypropylene glycol with the repeating ethylene glycol unit  $((\text{CH}_3)\text{CH}_2\text{CH}_2\text{O})_n$  wherein n ranges from 2 to 100, inclusive.

17. (Currently amended) The composite polyamide reverse osmosis membrane as claimed in claim 13 wherein said cross-linking compound is at least one member selected from the group consisting of  $\text{R}_1\text{R}_2\text{N}(\text{CH}_2)_n\text{NR}_3\text{R}_4$  wherein  $n=2-12$  and  $\text{R}_1, \text{R}_2, \text{R}_3$  and  $\text{R}_4$  are the same or different and are selected from the group consisting of methyl, ethyl, propyl, butyl, cyclohexyl and phenyl;

$\begin{array}{c} \text{R}_5 \\ | \\ \text{R}_1\text{R}_2\text{N}(\text{CH}_2-\text{CH}(\text{CH}_2)_m)_n\text{NR}_3\text{R}_4 \end{array}$  wherein  $m=0-3$  and  $n=1-4$  and  $\text{R}_1, \text{R}_2, \text{R}_3, \text{R}_4$  and  $\text{R}_5$  are the same or different and are selected from the group consisting of methyl, ethyl, propyl, butyl, cyclohexyl, hydroxyl and phenyl;

2,2'-(ethylenedioxy)bis(ethylamine); diaminocyclohexane; 1,3-cyclohexanebis(methylamine); 4,4'-trimethylenedipiperidine; piperazine; 1,4-dimethylpiperazine; N,N,N',N'-tetraethylethylenediamine; N,N,N',N'-tetramethylethylenediamine; N,N,N',N'-tetraethyl-1,3-propanediamine; N,N,N',N'-tetramethyl-1,3-propanediamine; N,N,N',N'-tetramethyl-1,3-butanediamine; N,N,N',N'-tetramethyl-1,4-butanediamine; N,N,N',N'-tetramethyl-1,5-pentanediamine; N,N,N',N'-tetramethyl-1,6-hexanediamine; N,N,N',N'-tetramethyl-1,7-heptanediamine; N,N,N',N'-tetramethyl-1,8-octanediamine; 1,4-diazabicyclo[2.2.2]octane; 1,8-diazabicyclo[5.4.0]undec-7-ene; 1,5-diazabicyclo[4.3.0]non-5-ene;

~~meta-phenylenediamine; meta-xylylenediamine; bis(4-aminophenyl)sulfone; tris(2-aminoethyl)amine; N,N,N',N',N''-pentamethyldiethylenetriamine; and 1,1,3,3-tetramethylguanidine; chitosan; and poly(allylamine).~~

Claim 18 (Canceled).

19. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 13 wherein said cross-linking compound is at least one member selected from the group consisting of tartaric acid; gluconic acid; glucuronic acid; 3,5-dihydroxybenzoic acid; 2,5-dihydroxybenzenesulfonic acid potassium salt; and 2,5-dihydroxy-1,4-benzenedisulfonic acid dipotassium salt.

20. (Original) The composite polyamide reverse osmosis membrane as claimed in claim 13 wherein said cross-linking compound is at least one member selected from the group consisting of 3,5-diaminobenzoic acid; 2-aminoethanesulfonic acid (taurine); 2-{[tris(hydroxymethyl)methyl]amino}-1-ethanesulfonic acid; 3-{[tris(hydroxymethyl)methyl]amino}-1-propanesulfonic acid; 2-hydroxy-3-{[tris(hydroxymethyl)methyl]amino}-1-propanesulfonic acid;  $\beta$ -hydroxy-4-(2-hydroxyethyl)-1-piperazinepropanesulfonic acid;  $\beta,\beta'$ -dihydroxy-1,4-piperazinebis(propanesulfonic acid); and 2,5-diaminobenzenesulfonic acid.

Claims 21-57 (Canceled).

58. (Currently amended) A microporous membrane comprising:

(a) a microporous support; and

(b) a hydrophilic coating directly on said microporous support, said hydrophilic coating being made by (i) applying to the microporous support a quantity of a polyfunctional epoxy compound, said polyfunctional epoxy compound ~~comprising at least three epoxy groups~~ selected

from the group consisting of diglycerol triglycidyl ether; pentaerythritol triglycidyl ether; sorbitol triglycidyl ether; glycerol propoxylate triglycidyl ether; trimethylolpropane triglycidyl ether; 1,1,1-tris(hydroxymethyl)ethane triglycidyl ether; 1,1,1-tris(hydroxyphenyl)ethane triglycidyl ether; tris(hydroxymethyl)nitromethane triglycidyl ether; phloroglucinol triglycidyl ether; a reaction product of epichlorohydrin and 1,3,5,-tris(2-hydroxyethyl)cyanuric acid; a reaction product of epichlorohydrin and tris(hydroxymethyl)amino methane; sorbitol tetraglycidyl ether; pentaerythritol tetraglycidyl ether; polyglycerol polyglycidyl ether; polyglycerol tetraglycidyl ether; a reaction product of polyvinyl alcohol and epichlorohydrin; a reaction product of polyvinyl phenol and epichlorohydrin; a reaction product of polyacrylamide and epichlorohydrin; a reaction product of epichlorohydrin and cellulose; and a reaction product of epichlorohydrin and a cellulose derivative, and (ii) then, cross-linking the polyfunctional epoxy compound in such a manner as to yield a water-insoluble polymer, wherein said polyfunctional epoxy compound is cross-linked solely through self-polymerization.

59. (Original) The microporous support as claimed in claim 58 wherein said microporous support is made of a material selected from the group consisting of a polysulfone, a polyether sulfone, a polyimide, a polyamide, a polyetherimide, polyacrylonitrile, poly(methyl methacrylate), polyethylene, polypropylene and a halogenated polymer.

60. (Original) The microporous support as claimed in claim 58 wherein said microporous support is a microfiltration membrane.

61. (Original) The microporous support as claimed in claim 58 wherein said microporous support is an ultrafiltration membrane.

Claims 62-78 (Canceled).